OFFICE OF THE ILLINOIS STATE FIRE MARSHALL

ELEVATOR SAFTY REVIEW BOARD MEETING

MARCH 3, 2016 at 8:30 A.M

TRANSCRIPT OF PROCEEDINGS had in the above-entitled cause on the 3rd day of March, A.D., 2016, at 8:30 a.m.

APPEARANCES: MR. JOSEPH BLOCK, Chairman
MR. BOB CAPUANI, Director Elevator Safety
MR. MATTHEW TAKSIN, Counsel for the Board
MR. DICK GREGORY, Consultant to the Board
MR. WILLIAM BOGDON, Board Member
MR. KEVIN GAHR, Board Member
MR. THOMAS GANIERE, Board Member
MR. CRAIG GRANT, Board Member
MR. MATTHEW HUNT, Board Member
MR. TOM JIRIK, Board Member
MR. CRAIG JOHNSON, Board Member
MR. TERRY SHANKLIN, Board Member
MR. KELLY WELLER, Board Member

CHAIRMAN BLOCK: We will call the meeting to order. We will stand for the pledge of allegiance.

(WHEREUPON, the audience said the Pledge of Allegiance to the Flag of the United States of America.)

CHAIRMAN BLOCK: Since we have quite a few new members on the Board, we will take a minute to do introductions.

As myself I am Joe Block. I am the new Chairman of the Board. The persons can go around the table. We will start with Terry.

MR. SHANKLIN: Terry Shanklin.

MR. GRANT: Craig Grant

MR. JIRIK: Tom Jirik.

MR. BOGDON: William Bogdon.

MR. WELLER: Kelly Weller

MR. JOHNSON: Craig Johnson

MR. GANIERE: Thomas Ganiere.

MR. GAHR: Kevin Gahr.

MR. HUNT: Matthew Hunt.

MR. TASKIN: Matthew Taksin

MR. SHANKLIN: Terry Shunklin.

MR. GREGORY: Dick Gregory, a consultant to

the Board.

MR. CAPUANI: Bob Capuani.

CHAIRMAN BLOCK: Thank you. We can move forward.

Has everyone had the opportunity to review the minutes?

Do we have a motion?

MR. SHANKLIN: I make a motion to accept.

CHAIRMAN BLOCK: Is there a second?

MR. HUNT: Second.

CHAIRMAN BLOCK: All in favor say aye.

[The ayes were heard.]

CHAIRMAN BLOCK: Any opposed?

[No response.]

CHAIRMAN BLOCK: The ayes have it.

The court reporter would like the person making the motion to state their name.

MR. SHANKLIN: Terry Shanklin.

MR. HUNT: Matt Hunt, second.

CHAIRMAN BLOCK: The minutes are approved. So we will move forward to old business.

Bob will have the floor.

MR. CAPUANI: Panel members, members of the public, as of today, May 3, 486,000 permits to

date this year of 1/6 85 licenses, 115 registrations, 1,767 certificates.

Another item I am going to add to my list is fatalities.

Right now we have two fatalities, not in Illinois, thank God. One was up in Quebec, Canada.

MR. SHANKLIN: Yes.

MR. CAPUANI: And one was in Arkansas. The person in Arkansas was a 28-year-old mechanic, just married. His wife was 13 weeks pregnant. He was crushed under an elevator.

So I urge the inspection companies out here to make sure that your inspectors and remind them about accidents and egress out of the pits and hard tops. This is what happened. He was in the pit. We don't know exactly what happened, but he was crushed by the car.

CHAIRMAN BLOCK: Any comments?

MR. GREGORY: As part of the work that I do as a consultant and expert witness, I have one dead mechanic in Dallas, one dead mechanic in Chicago and one in Indiana going on right now. So safety is crucial.

CHAIRMAN BLOCK: That's Old business. Let's move on to new business. We will move on to new business. We have a presentation of wind turbine elevators.

Can you state your name and come down here.

MR. KOSHAK: My name is John Koshak, K-o-s-h-a-k.

CHAIRMAN BLOCK: Thank you.

MR. KOSHAK: I have given the Board a Power Point Presentation.

Do you want me to put it on the screen?

CHAIRMAN BLOCK: Bob, what do you want to do?

MR. CAPUANI: It's up to you.

CHAIRMAN BLOCK: Can you get it hooked up?

MR. KOSHAK: Where is the plug?

CHAIRMAN BLOCK: Let's go off the record while we get that set up.

(WHEREUPON, there followed a discussion outside the record.)

CHAIRMAN BLOCK: Back on the record.

MR. CAPUANI: Let's go back on the record.

While we are getting the Power Point presentation set up, we are going to hear from Dave Smith. Dave is from Temples. Dave is an inspector and a mechanic from Wind Turbines, and he is going to give us a little talk on how he does his inspection and what is required of him.

So, Dave, if you would come up here and introduce yourself.

MR. SMITH: My name is Dave Smith with Temples Group. I have just a couple of things before I talk about the actual inspection of the units.

I have heard some discussion regarding the legal matters that the State of Illinois might run into, switching these wind turbine elevators from special use elevators to wind turbine elevators to be inspected.

I would just like to remind the Board that in 1997 we had elevators that weren't being inspected by the State of Illinois, and things changed. I am sure that people thought the world was going come to an end, and the world is still going on.

I would urge the Board to look at

this from a safety standpoint, strictly a safety standpoint and not how the lawyers will effect it, because I can assure you that the lawyers are going to make money either way. It's just what they do. Let's think about this by how safe it's going make a product, whether they are going to get it inspected annually. I think that is an important item to think about.

From the inspection standpoint when you go out to a wind turbine, it's very different than a commercial elevator. It's also very different from most industrial inspections.

The biggest things that are different is probably the environment, because as you go out to a wind turbine elevator, there are safety considerations with the environment such as fog, ice, wind, lightning and all these things effect how many units you get done in a day, whether you get any units done in a day, how many breaks have to be taken during the day. For example, lightning, they have monitors set up at 60 miles out; and if there a lightning strike 60 miles out, you have to start with leaving the tower.

At 30 miles out you can be out of the

tower and back at the O & M office, and you don't to get to go back to the tower until it has been all clear for 30 minutes.

I have been in situations where you get the all clear, you are back to the tower. We have all your stuff back up in the tower and lightning springs 60 miles away again. And you do it all over again.

Because of that, the inspections are -- they have a little bit of influx. It's not like you walk into a machine room, you start the machine room, you go to the pit, you go to the hoist way and nobody gets in your road. Nobody stops you. There are those concerns.

The secondary of concern is qualifications. Because these turbines are generally located in remote locations and you need to go into them with a team and that team needs to be able to rescue each other.

As an inspector, you really need to be Climb-A-Rescue certified. So you can rescue the person you are with, and that person is usually from the company that you are inspecting with, and they need to be certified to rescue you

from those turbines.

I just left Kansas. In Kansas that was the closest point to a hospital of anywhere I had worked in eight months.

The closest place, the closest EMT and hospital was a half hour away. If you have a medical emergency at height in the tower, and you are hanging from your harness, if somebody isn't starting rescue immediately, you are going to be hanging for a half hour before the paramedics get there, and the most likelihood the paramedics haven't done this too often. They are not particularly skilled at it. It's going to take them time to get you down.

If it's a heart attack or something like that, that is too long. So, as an inspector, you really have the responsibility of being able to rescue the person you are with, and he has a responsibility of being able to get you out of the tower. If he can get you out of the tower and on the ground when the paramedics arrive, then they can start their work and start the transportation. So that would be the second item that I think is important for the people to know.

I think the third one is the equipment really isn't that complicated. The equipment is -- if you have time in the trade and you have worked in the field and you have worked on the equipment for 15 years, this stuff is not going to be that difficult.

If you have experience with code books and understanding what they are asking for in the code book, I am sure you can apply the first two that I talked about weather conditions and if additional skills that you need to acquire to be able to go into a tower safely or properly. Those are the points that you need to think about when you are getting ready to inspect wind turbine elevators.

MR. CAPUANI: Thank you.

CHAIRMAN BLOCK: Thank you, Dave.

MR. SHANKLIN: I have a question.

MR. SMITH: Yes, sir.

MR. SHANKLIN: As far as the usage, how often do these elevators shut down? What type of usage do you normally see?

MR. SHANKLIN: Of the units that I have inspected that have five-plus years, very few of

them have been at a plus 200 hours. There are very few of them that have been plus 200 hours. Under five years you are looking somewhere in the neighborhood of 100 hours tops.

That being said it has been my experience with the equipment that I am inspecting that hours of use isn't as important as years in service.

There are components that are made up of rubber and things like that that really don't care the number of hours. They are sitting there with pressure on them. There is flat spots. They can deteriorate from temperature and cold. Keep in mind that these units under normal operation are minus 33 with I think 125 degrees. So, that rubber and material sees a pretty big temperature swing. It's a lot greater than your average commercial elevator. Even if it had an outside machine room, the equipment is going to heat it up. It's going to keep it a little more.

MR. SHANKLIN: So, the turbine has to have a maintenance program for each turbine, I am assuming?

MR. SMITH: Yes. The manufactures that I

have seen have a maintenance schedule.

MR. SHANKLIN: Would you know how often they maintained that piece of equipment on a monthly basis?

MR. SMITH: The equipment I have seen the equipment, the manuals call for annual inspections.

Tractell, which is the biggest manufacturers of components for these things is a little bit -- they are on the fence. I see six month inspection schedules. Then I see annual inspection schedules. They are in the process right now of clarifying that and coming out with a wind turbine elevator manual which they don't have yet.

MR. SHANKLIN: So, in other words it's a biannual maintenance inspection by the manufacture's technicians, would you say that?

MR. SMITH: Certified by the manufacturer, yes. But I think it's more reasonable and I believe that Tractel will probably come out with an annual inspection.

In my opinion that would be more than adequate. If you look at them five times in five

years, you are not going to have the problems and the failures that I have seen when it hasn't been looked at at that rate.

MR. SHANKLIN: Thank you.

CHAIRMAN BLOCK: Dave, one question, do you know, are they specifying just inspections, or are there maintenance requirements and components as well?

MR. SMITH: There are maintenance requirements in that, yes.

CHAIRMAN BLOCK: Component replacement requirements?

MR. SMITH: Component checks; and if they don't meet specs, then there would be replacement; but if they meet specs, then there is not necessarily a requirement to change things.

That being said at the five-year mark in my estimation you would be foolish to spend the time removing the components, disassembling them and inspecting them and not replacing some items in there that wear, especially neoprene or rubber items that are in some of the locks. That is just purely a financial decision, because you do all the work of looking at it and then you are not

going to get it until maybe a year or two out and have to replace it when you replaced it right then. You would be pretty good for five years.

CHAIRMAN BLOCK: Okay.

MR. SMITH: But there is a lot of opinions in that matter, so it's just mine.

CHAIRMAN BLOCK: Thank you. Any other questions.

MR. WELLER: Well, I know you talked about this in the course of our meetings overtime.

These were considered service elevators?

MR. CAPUANI: These were considered special purpose elevators.

MR. WELLER: So, jurisdictionally what are we looking at? Are we looking at inspection under the code or are we looking at placement mechanics under the code, or are we looking at installation under the code?

Which one of these pertains to this order?

MR. CAPUANI: This is the question that I think our legal is going to review. Up to 2013 there were special purpose personnel. As you

know, they are exempt from our act.

MR. WELLER: And there is no way a public person could wander into one of those?

MR. CAPUANI: Absolutely not. They are padlocked.

MR. WELLER: I was curious.

MR. CAPUANI: It was taken out of that inspection and put into 5.11 of the codebook, which would be under our jurisdiction after we adopt the Code 13 code.

MR. WELLER: Before 2013 it was a special purpose.

Now because they have changed the code, now are we being asked to oversee the installation of the inspection or the repair and maintenance? Which one are we applying?

MR. CAPUANI: All of the above.

MR. WELLER: So now they are being asked to consider public use under the same requirement?

MR. CAPUANI: I don't believe the public can go into these installations.

MR. WELLER: But you have to be qualified?

MR. CAPUANI: This is a question for our general counsel, and our attorneys are going to

try to review it and see what happened with that special inspection personnel. I.

Have reached out to our states, and what the other states do is they figure that if it's an SP elevator and you install SP, it's an SP. They are still exempt such as grain elevators. Grain elevators are still considered special personnel, so they are still exempt under our act.

MR. WELLER: This is something unique?

MR. CAPUANI: Yes.

MR. GREGORY: What we did on the elevator Standards Committee is we put a new section in the guide -- that is John Koshak here -- who ram-rodded a new section in the code and took wind turbine elevators and made a section of wind turbine elevators; and from an A-17 point of view, it is considered an elevator.

So that means that in the jurisdictions that enforce the code, unless they make an exemption for wind turbine elevators, it would have to be a specific exemption in their law, and unless they make that exemption, you would have to permit them to put them, register

them, have them have maintenance and have inspections.

MR. SHANKLIN: All under our jurisdiction?

MR. CAPUANI: Yes, because we are now since February 19th of last year, we are under a 71-2013 where these wind turbine elevators are in the code.

MR. WELLER: Just so I understand, so these things come off of the semitruck, and they pick them up and erect them?

MR. GREGORY: I have never been in one. John has asked me that.

MR. WELLER: So, it's assembled after it's put up?

MR. KOSHAK: It's a box of parts.

MR. WELLER: Okay. I'm sorry. I am very new at this. I am learning.

MR. JOHNSON: All elevators in the state are not inspected now?

MR. GREGORY: The special purpose personnel elevators and residential elevators are not covered in the State of Illinois.

MR. JOHNSON: And they are not covered under the general public's knowledge in the same

way?

MR. CAPUANI: They are exempt.

MR. GREGORY: It's a political decision made by the legislature. They are in the elevator code. They are required to meet the elevator code, but not in the State of Illinois.

It just takes a part of jurisdictions in the City of Chicago, which is a different state you realize.

Residential elevators have to be permitted and inspected when they are installed, but then if the owner of the residence says oh, I don't want to do this inspection, if the inspector shows up and they don't let you in, they never come back.

MR. JOHNSON: So, installation of elevators of all times are permanent.

MR. GREGORY: In Chicago, but not Illinois.

MR. CAPUANI: Not in Illinois.

MR. JOHNSON: So, in my community if someone wants to put in an elevator in a house, then they don't --

MR. GREGORY: You can make in your community whatever it may be. You can make a

stronger code than the State.

MS. VAUGHN: Residential elevators are covered at the local level, so they are permitted and they get a permit inspection.

But I think what he is saying is that when it is the permit portion or phase is completed and it's turned over to the resident, then regular inspections do not occur.

Annual inspections are strictly for the commercial aspect for public use in buildings such as a hospital.

MR. GREGORY: That is on a community by community basis as far as what they do.

MR. JOHNSON: But aren't jurisdictional authority as of right now you follow the state code and still so special purposes do not get inspected?

MR. GREGORY: Or permitted or anything, right.

MR. JOHNSON: And the other one is --

MR. GREGORY: Residential.

MR. JOHNSON: But all commercial and all public and stuff are required a permanent inspection each year?

MR. GREGORY: Right. You can do in your community what you want to exceed as far as that goes.

MR. JOHNSON: I am saying as far as our authority, we are talking here right now we have to follow the State statute; am I correct?

MR. SHANKLIN: Correct.

MR. CAPUANI: There are special use permits. What happened is that the lobbyists got together and the agricultural, and they took it out of the act because of the cost.

What happened to this individual that owned the company that pushed us is now coming to us saying that he would like it back into the act because what happened was he didn't want to pay his licensed mechanics. He didn't want to pay the inspection fees. He didn't want to pay any of this while he lost 90 percent of his business because now grain elevators are maintained by anyone. Anyone can maintain them. So, he is tying to push this back into the act.

MR. JOHNSON: So now are wind turbines considered a special purpose?

MR. CAPUANI: No. They were.

MR. JOHNSON: What are they now?

MR. GREGORY: Now they are wind turbine, and they are in the elevator code so they are regulated in the State of Illinois.

MR. JOHNSON: So they are the same as any commercial or public?

MR. GREGORY: Yes.

MR. CAPUANI: Yes. The State adopted the 2013. They came into the jurisdiction.

MR. GREGORY: But I don't think you see many wind towers in your suburb.

MS. VAUGHN: We are not going to see them most likely in the northwest corner.

MR. CAPUANI: Dave, what is the average age of the wind turbine elevators that you inspect? What is the oldest.

MR. SMITH: Really 10 is getting up there. There are probably some out there older than 10. 10 is a pretty good mark for an older elevator.

MR. JOHNSON: We are here today to decide if --

MR. CAPUANI: We are not deciding anything today.

MR. GREGORY: We are just learning.

MR. JOHNSON: Okay. Thank you.

CHAIRMAN BLOCK: Dave, can I just ask you, do you know what the expected lifespan is on those?

MR. SMITH: They are generally built to last 20 years, the actual tower and the cell; but I can assure you if they are making money at the end of 20 years, they are going to keep repairing them and keep going unless for some reason they are obsolete.

MR. GREGORY: The biggest problems is the gear box.

MR. SMITH: Routinely they pull those gear boxes out now. They actually in some sites take the cell and set it on the ground and pull the gear boxes out and replace them when they get cracks and so forth. So I can see that with maintenance these are just going to go on.

MR. KOSHAK: Mr. Chairman, a lot of these questions can be answered with this presentation. A picture is worth a thousand words.

CHAIRMAN BLOCK: So no more questions. Let's move forward with the presentation.

MR. KOSHAK: First I am John Koshak for

those who don't know me. I appreciated David being here and Temples and the other manufacturers and Andy. We have a wind farm owner or I guess you're a manager. So, we have plenty of turbine experts besides me, not that I am an expert; but I know a lot about them.

Basically in the U.S. and Canada starting in 2009 we started modifying the code and today as we sit here today, the 2016 code will no longer have wind turbine 511 in it. It is now its own standard A-17.8. So this is kind of a unique period in that 2013 is going to be the only additional code that has Section 5.7, or 5.11, I guess. So when you guys adopted the 2016 some of the issues will go away.

I talk about the standardization, the benefits of standardization. In many presentations you guys are past this point. You have already adopted it, so thank you.

What we have here is the State of Illinois has a general rule that says any conveyance has to be regulated and registered and so when the 2013 adoption came along, I called and asked the question how do you guys want to handle

the 2006 installations and the 2009, the pre-2013 stuff, because now you've got that body of conveyances.

Technically speaking there is special purpose personnel elevators. In the code the special purpose personnel elevators defined the devises only to be used by authority and trained persons, not the general public. That is what makes it a special purpose, a personnel elevator.

They didn't quite follow the Section 5.7, which is the SPPE section of the code and so in many jurisdictions across the country, I actually had to write a variance to 5.7 for the AHJ for me to put them. For instance, the State of Illinois and the State of Pennsylvania.

Because Illinois is unique that they don't regulate SPPE's, they didn't see me six years ago making a presentation about the variances to 5.7 because you didn't regulate it.

But generally speaking when there are two considerations, you would get a permit to install it, get a registration to tell the state that it's here and give it a number and then the existing installation requiring identification.

Then with that registration on the form, you have to say what code am I inspecting this to and so that was the question I called and said to Bob and the Board what code are you going to make us compliant with.

My recommendation is use what the manufacturer is inspecting it to back in 2006 through 2014, because that is what they have been being inspected to, and we haven't seen any issues with it, and I don't expect to ever see any issues with it.

The alternative is that you say will no, I want all of these units to comply with 2013. That is a retrofit requirement and then that would cause the stakeholders in that industry a lot of time; and I don't think that money is well-spent. That is what I am here to argue, that leaving them alone, we would like them to be registered.

We like them to be inspected, and we have inspection training available. Whether or not you have the personnel to do this inspection is another matter. To me it's a money maker if you want to get into the inspection business like Dave.

So I got slightly ahead of myself. Earlier we had no codes in Illinois, and what you requested was that these earlier devices be granted permits, but no requirements for upgrading.

In the event that you do go that direction, though, we would be more than willing to prepare a variance document to explain what their 27 variances from Section 5.7, and other states have simply looked at it and said yes, you are right.

A typical example is one of the requirements in the code is a rail of an elevator can't deflect more than a quarter inch.

These devices are actually on half-inch ropes. They are like a guitar string and so just standing in mid levels, you can shake and the car will shake a foot. It will vibrate a foot. So, clearly the corner deviation is something that we would have to request a variance for as an example, and all of the other examples are similar to that.

So what are these devices and how many of them are there? Part of my job when I got

into the wind turbine side was assisting my client with approvals around the country and around North America. This is current as of May of 2013.

It hasn't really changed much except Illinois is going to go green now instead of brown. Green represents jurisdictions that regulate these devices. Red represents jurisdictions that don't. Why don't they? And just to give you a flavor of the North American market, Texas has a rule that excludes all industrial facilities from a 17.1. If it's an oil grant or if it's an oil refinery, if it's a bed manufacturing facility, they don't have to comply with 17.1. You have unique rules here in Illinois. States have different unique rules around the country. So, these devices while they are in the industrial facilities exclusion, it's similar in Kansas and Oklahoma. I don't know the exact exclusion in Nebraska. That is not a very organized state. The code is they don't have any jurisdiction per se.

MR. GREGORY: Or code.

MR. KOSHAK: Yeah. West Virginia and Virginia, I would say that they are more along the

industrial facility exclusions, and that goes again to the industry. The mine industry is very powerful, and they don't want regulation and so they don't get it.

Quebec is just weird, and Alberta and Saskatchewan, they are reconsidering their position on this with the 2013.

Prior to when this slide was last touched, A-17.8 was the thought of a dream of it's going to be down the road some time. And now that A-17.8 is reality, and businesses in Saskatchewan are probably going to tag along.

Canada typically is mostly unified across. So, that gives you an idea of what are these things.

So if you have driven around the country, California has a slew of them. Palm Springs is like the 1980s, real small 20, 30, 40 meter towers and then as you see this progression and the time line, the size of the generators the wind turbines higher up, there is clearly more land with the air flow.

As you increase one meter in diameter of the propeller, it's a function of the square of

the something root, whatever root you get, and you get five times more energy for every one foot of more diameter.

They want them bigger, and what we are seeing today is two and a half to three and half megawatt generators inside these turbines.

So when you see them, they seem like they are just loping along at 22 rpm's, the ones that are being installed today are generating upwards of four megawatts of instantaneous power. There's a tremendous amount of power. If you can see the growth, it's going up to five. There are some off-shore ones in the north sea here that are over seven megawatts. They are just monstrosities 100, 200 meters tall.

So the ones we are talking about today are between 100 and 125 meters that they are building today.

Most of the ones that were installed that Dave is looking at are 80 to 100 meters. 100 feet is 30 meters. So 300 feet is 100 meters. So that is the growth. It's another view of what the future is going to be. So in that 2015 to 2002, 125 meter five megawatt, this is where we are at

and then in the future it's going to go to 10 megawatt, and I don't know if they are 20 megawatt. But this is from IWEA. IWEA is the American Wind Energy Association. There is typically a state version of it, like the Illinois Wind Energy Association. This is what they are. This is a picture of one that I took in Pennsylvania somewhere.

So these next slides are pictures of actual ones. So here is -- this picture is deliberate. This is one where there's one-man units in it. (Indicating.)

This is a guy in one from another manufacturer. These are obviously precode. This one is precode. We talked about some of the code.

This one has changes that the products for all of those who comply with the code have made. Again, this is an Avanti product here, both of these. This type of devices you will see them, but in our code we disallowed a bucket-type car. It has to have a full length door, and the reason we did that is when we were drafting the early 511 code, the only fatality that I am aware of in the wind industry occurred in Iowa. Iowa

for it's small size has the second most number of wind turbines in America in the United States. Texas is No. 1. California is struggling every year. They are trying to beat each other.

But some kid was working a wind turbine, a guy was working, he climbed down the bucket.

When you work in these devices, you are supposed to have your lanyards hooked up to that anchor point, and these guys don't have that. I never noticed that.

So you have a safety harness, and it's got two hooks on it. You are supposed to hook up, and it hooks another one. You unhooked it to places and cross over to transition.

This kid apparently unhooked; and, as he climbed out of the bucket, there was a boy in the top lift of the bucket, and his foot slipped and he fell out of the bucket onto the platform.

The platforms are 30 meters between them typically. There is a ladder. As you can see on the left there, the ladder meets the elevator. That ladder is going through a hole in the platform, and there is typically a port door

that closes so that you don't fall through that hole. This kid had left that port door open, the ladder door. So it was a comedy of errors. He didn't hook up. He stepped on a slippery surface. He rolled and fell down that hole; and when that report, the chief inspector and I Jim Borway reported it, we did a hazard assessment and quickly decided that that is why bucket cars aren't allowed in the code anymore, even though there are some owners who says it's cheaper, I like it, it seems safer, when you get a hazard assessment and you look at the actual experience, it's a really good example of how the code makes it safer. If you don't make the guy climb 43 inches to get out of the car, if you can just simply open a full size door, it's safer.

CHAIRMAN BLOCK: Is this limited amount of manufacture of these cars?

MR. KOSHAK: There is about 20 worldwide.

MR. SMITH: There's three in the U.S. still.

MR. KOSHAK: There is Skyman, Power Climber, Avanti. There used to be seven. Now there is three. There might be four. So, again,

this is another view of when you are in a tower, the ladder typically is placed where you can rest your back on the tower wall, but that is not always the case.

But you can see there is an elevator. There is the hole in the elevator platform; and, again, between the platform we are talking 90 feet, 30 meters minimum.

This is a company called High-Low, and this has a really good illustration. So there's a couple things that you need to be aware of. There is two kinds primarily. There is a rope guided where you have these two half-inch top ropes like this one and then you have a ladder-guided one. So you see this car is actually guided on the ladder.

There are a lot of code requirements regarding the safety of the ladder climbing to the car. As you clearly don't want a car driving up on to or down on to a climber obviously. It's actually over the center of the car. So, it's not being driven up the ladder. It is only being guided by the ladder. There is, however, a rack and pinion version of the ladder guide, and that

is somewhat cantilever.

So Power Climber is another player, and you can see that -- I wanted you to take a look at these two pictures. This one is what the industry brought to the table.

Those two little bars were what you would see when the car came down and hit the floor. There is no pit. That is the normal stopping means.

It's also an obstruction to a detection device, which when it got to code, we said wait a minute. If you are standing right here, you are not going to be hitting the head bar. If you are standing right here, you are not going to be safe either.

So now the obstruction plates are full size over the footprint with guards to prevent fingers or a toe being crushed.

So, another code improvement, this is a company Gordon. They actually closed their U.S. doors. They are still a major player in the world. This is their design. Their design has some really neat features in that they have plexiglass on all four sides of the car, so which

it begs the question why do you have plexiglass there? Why do you have holes in this car?

One of the functions of this lift is not just transportation. It is to examine the inside of the tower, and the towers are painted white on purpose. If there is a fracture, you will see the rust line. So you are actually inspecting the tower, seeing good visibility outside of the car.

That glass, if and when you do run into these, that has to be labeled glass. So you will see a bug like you would on the vision panel. So we made some special requirements regarding allowing that glass panel, that vision panel to be larger.

These are actual NCTU. This is a typical railing. In this case there is no gate, because this was a bucket car.

At their shows they have towers, and they have their latest and greatest designs, and you get in and ride them up 20 feet, if you want to go to that air show.

This is going to be your standard railing around a lift in a tower. So this is a

gate. The gate has to be self-closing with an 11-pound force. It does not have to be switched by the current code, no interlock, no mechanical and electric contact.

CHAIRMAN BLOCK: These are constant pressure?

MR. KOSHAK: They are all constant pressure turbine with one exception, and that exception would require an electric contact or a trapped key system. You will probably start seeing trapped key systems in the future. Certainly you can put a switch on there if you want, but generally people don't.

A trapped key system is a system where there is a key switch in the car, and you have to take a special key and put it in and turn it and that then when you close the door, you can run.

The gate has a trapped key mechanism that requires the same key to unlock it so that you can open the gate. You can't take the key out unless the gate is closed. Hence, it's a trapped key. It becomes untrapped when you close the gate and turn the key. Now, the gate locks, and then

you take the same key and put it in the machine and turn it. Now, you can run. That key is on a tether, and that tether has to be thick enough that when it comes through the gate, you cannot close the gate. The gate switch won't make up. So that is a trapped key system. That was the tradeoff to running conduit through all of these strictly speaking remote 30 meter floors. So there is no electrical at any landing. All of the electrical components are on the car.

So it's just kind of a view of a tower to give you some idea of the relationships of things. The ladder always has to be within one meter of the exit point of the car.

So that if the car were to break bad and you can't manually lower yourself, you could open the door. You are hooked up. You can reach the ladder just like a pit ladder is, hook on the ladder, unhook it from the car and then extricate yourself.

So, those are pretty much the types of examples of what they are, and the rest we have kind of talked about. It's a unique environment.

The temperature extremes, as Dave

mentioned, are pretty severe. There is some that go to minus 40.

Generally speaking, there are survivability temperatures where the manufacturer makes it to very frigid temperatures, and then there are operational limit temperatures where human beings below this temperature human beings can't even be in it.

When you go to a wind farm, the first thing that you are going to see is -- or one of the things that you will be asked to do is to do their safety training and understand the rules of the wind farm. There is going to be a sign similar to this that says when the wind is X miles an hour or actually --

MR. SMITH: Meters per second.

MR. KOSHAK: Meters per second, I still can't grasp that. The wind is measured in metric meters per second. It's one to seven. The higher the wind, if it's very high wind, you are not even allowed in the tower.

If it's between this and this speed, you are allowed in the tower, but not at the top of the tower or in the elevator; and if it's lower

than that, then you are allowed in the elevator.

Another Rule is if you detect lightning within 50 miles of the tower itself itself, you will get an alarm; and the alarm comes on all of your communication systems, a horn and everybody has to come back to the operations and maintenance building. They are very strict.

MR. SHANKLIN: John, maybe you can help me out.

As far as the grain elevators, what was the rational to move it from a special purpose to its own section?

MR. KOSHAK: The fifth line. There is going to be 100,000 of these things by 2030. There is no other sector of elevators that have such a huge population that we used daily; and when I first met Matt Avanti and I started grasping what these numbers meant, I went to the standards Committee and I asked the standards committee hey, guys, there is going to be 100,000 of these. Do we want them in our scope? And the answer was yes.

MR. SHANKLIN: The inspections will also be an issue. Those are the people who inspect

elevators and conveyors. They are usually older, retired members, and it just doesn't pay enough to support a family on just being a pure inspector.

So now you are looking at somebody that is being physically fit, somewhat capable of lifting their weight, because they have this. It's going to be rough to man that. The manpower of the inspection is going to be difficult. You have 100,000 elevators. There is going to be a pretty significant amount of people that you are going to need to inspect them.

MR. GREGORY: Life is easy.

MR. GRANT: Are you going to try to repeat on an annual inspection basis? I have 240 of these in my neighborhood.

So, how are you going to manage the inspection frequency given the environmental limitations for access in the states that do regulate it? It's seems as if it's out of their hands.

MR. SMITH: Out of whose hands, the State?

MR. GRANT: The point is that if you have to have that wind turbine, there's 242, let's say, they may have 13 more turbines than that totally

across the state and other states to get an annual inspection cycle on an existing installation by somebody that has to come in, verify who they are, go out to the site and talk about the lightning, talk about the wind and operational choices, how do you manage that to ensure that you can get the annual inspection done in a one-year period?

MR. SMITH: It would be the same way you manage the maintenance of the cell or the maintenance of the equipment at the bottom of the tower. It's not a problem. They are very organized. The maintenance of the cell is incredible. I wish the commercial elevators were maintained the way that the cells are maintained.

MR. VANSLEET: One of the things that they are very good about is they know when there's high low periods.

They can predict certain months where we are concerned, so people plan the maintenance and things like that.

So with the elevators basically I try to install them. There is periods of low wind, low snow. You try not to be in the snow in the mountains. So, basically you know for the next

15, 20 years when you are going to want to be on the site. There is historical data. So you can plan them. You are trying to measure the plane and the light. It's very predictable within a few week period of when you can do work and when you cannot do work.

MR. CAPUANI: If you are going to speak from the audience, can you leave your name.

MR. VANSLEET: My name is Neil Vansleet.

MR. A. SMITH: My name is Adam Smith. This lines up with his question.

What are the statistics of the upper Midwest on the average number of days where you could not inspect the elevator, the wind farm?

Is it five percent, so it's not a big deal or is it 75 percent and then maybe this is a big deal?

MR. KOSHAK: Generally, as I understand it, Andy said it and I will say it in the way I understand it, there is high and low wind periods.

So, there is that one month it's high for six months, it's higher wind than the other six months. So I don't know. How does Jim do it in Iowa?

MR. GRANT: Jim has 5,000 of these things.

MR. VANSLEET: 900.

MR. KOSHAK: And he's got the system sorted out. It's an impossible task.

MR. SMITH: The inspector also inspects ski lifts, which is only certain times of the year, and they work it in. They actually don't require a third party. They are actually doing it as a state entity, and they have a lot of them.

MR. KOSHAK: They have almost 400.

MR. VANSLEET: Well, this is very informational what you said. I am still trying to figure out where we fit in this. I want to make sure I understand exactly what the issue is.

The industry is asking OSFM to act as a regulator for your elevator maintenance installation and inspections.

You are coming to us wanting us to conclude you in our regulatory review?

MR. KOSHAK: Illinois in general says that every conveyance must be registered.

MR. VANSLEET: My question is in Illinois do you want me to register my 90 units? And the answer was yes. Okay. I will register.

The next question is what code? Are you going to require that you and inspect them, too?

I recommended manufacturer's maintenance and the manufacturer's inspections, because the option was Illinois can say yes, we want them; but we want to comply with the latest code which would require massive expense to the owners. We are trying to prevent the owners from having to pay that.

MR. WELLER: When the elevator is installed, isn't it installed under the code and regulated under the code that it is installed under?

MR. KOSHAK: Yes.

MR. WELLER: So, why would that be different?

MR. KOSHAK: Because there was no code. You were excluded under the special purpose.

MR. WELLER: I am trying to figure out what we are being asked to do, if that is what we are being asked to do.

MR. TASKIN: That is something we are going to have to look into. We are allowing him to

present his information here and sort of present the question, but the answer is going to have to be investigated. We know what his position is.

MR. WELLER: Do we need to put that on the agenda then to be reviewed before the next meeting?

MR. TASKIN: Yes. It will be for a future meeting.

MR. HUNT: I am Matt Hunt.

Looking at coastal waters as they have in Scotland, that's one thing because then you are still U.S. bound.

But looking at the Great Lakes, it's a leap into the future, but I don't think it's that far off.

You have had discussions with the border states of the Great Lakes as far as whose jurisdiction that falls into?

So, is it U.S. Government, state government and then who gets the fight in that battle.

MR. VANSLEET: I can speak on the first five off shores this year, and it's the U.S. Navy that regulates them. But no one perceives having

turbine at the Great Lakes.

MR. HUNT: Okay.

MR. KOSHAK: It's complicated.

In certain states they say that if it's within three miles of the low water line, it's state jurisdiction. Outside of that its Coast Guard or U.S., Federal management, different organizations.

I have not been asked to investigate the Great Lakes. So I did have to investigate the Massachusets where the Kennedys blocked it. But oh, well.

MR. SHANKLIN: Who are they?

CHAIRMAN BLOCK: Any additional comments?

MR. KOSHAK: I will blow through these last few.

There is created a checklist for inspectors, and it's available to anybody who wants to e-mail me. This is pretty commonly used in Iowa and Pennsylvania, the variance of it; and here is some just actual photos. (Indicating.)

What an inspector is looking at as he walks in, how they are guided different methodologies. This is information on ex-U.S.

manufacturers.

MR. WELLER: I just want to make sure.

So the people who are inspecting these elevators are going to be elevator inspectors, elevator constructors who are going to put them in, and mechanics are going to work on them. That is where we are going with this?

MR. KOSHAK: That's where we are going.

MR. WELLER: So, the person who is inspecting the turbine could be a completely different person than the person who is inspecting the elevator. That is going be a different person?

MR. KOSHAK: Yes.

MR. WELLER: I understand.

MR. KOSHAK: Again, I am just blowing through this.

These two whisper switches, all of the electrical controls for the elevator people in the room are on the car. There is nothing outside the travel path. There is one power cable that is a travel or a trail cable. That is it.

CHAIRMAN BLOCK: These are complete climbers.

MR. KOSHAK: Yes. This is another view. Dave was mentioning earlier that there are some issues with flags flying in the polyurethane rollers. So they don't have a governor and safety in the traditional sense of an elevator. They have a device that incorporates both into one little small shoe box size. So, the cable goes in, and there is a little tiny wheel with a governor, and then the governor fits a mouse trap and then two big sliders grab the rope. So, it's the governor and safety all in one shoe box. We call that rope gripping safety; and when you look at 511 in the code, there is a definition now for rope gripping safety. So it's not Type A, B or C for those of you technical ones. It's closer than a Type, B, but it's not quite as continuous.

On the other hand, these things only -- the max speed that they are going to go is 80 foot a minute, and everyone that you are going to see for the next foreseeable future is they are only going 35 foot a minute. So they are very, very, very slow.

CHAIRMAN BLOCK: Is that safety on the rope it's climbing?

MR. KOSHAK: No. It's on a separate safety rope. The safety rope has no load on it. It just sits there. The traction climbing rope is the one -- that is the only one. It's climbing on one rope, but potentially it's suspended by two. If one breaks, the safety rope would then be the suspension rope.

CHAIRMAN BLOCK: Okay. That is why I was asking.

This turbine is just a variant. You see that you go up a tower, this area which is a confined space quite a bit. This would be confined space. There is no elevator crack down there for the most part.

MR. KOSHAK: In this case they call it a convert. I would call it an invertor, but they are taking 600 volts D.C. from the missile, 660; and they are putting it into that invertor, and some tower manufacturers put the invertor in the tower.

Some of them you will see off to the side on a path. When you have that situation, then the elevator can't go next to it. So you would climb up. You would then have to climb up

this to get to the elevator.

Now, there is some equipment under the elevator. So I said earlier there is no elevator stuff down here.

This next picture shows what that stuff might be. This weight is keeping tension on the safety rope, that shoe box rope safety; and it also prevents the rope from being pulled up if it were to jamb on something. Then the suspension rope has this spring across again just to prevent it from being pulled up and being tangled, because you got those two dead ends.

And then you have typically some tensioners, and this is a design that you put together. The tensioner will have some indication of the load or the tautness of the guitar string, if you will.

I have seen some designs where it's red, green and where it's just really a bolt adjustment like a turn bevel to pull the thing tight, and there will be an indicator for the inspector to see what that tension is. There is a go/no go.

The only thing that is really

different is torquing because this thing vibrates 24/7, every bolt in this thing is torque, and it's got torque markings; and there will be a date that the torquing is done.

In 2009 there will be another color, and somehow you will have to conclude that orange is 2009 and red is 2011, and yellow is whatever. But there will be some kind of indication, and we put those torque requirements to verify the torque bolts for the machines.

As an inspector, you are going to go to the top, and you are ultimately going to get the machinery. That is a standard machine beam. Again, these things aren't very heavy. They don't have much load on them. So this is your typical fastening. We allow swedging in our code, which is unique.

The swedging at the fastening, there has to be a record of the swedging company, and they are not allowed to field swedge. It has to be done at a factory. Some of the problems that we have seen that we have taken out of the code, one inspector found that the eyelets were touching.

The eyelets were touching to the point of vibrating the breaking wires. So this is one thing inspectors ought to be looking for.

I can go through some of the numbers. This is three years old. We are 60 gigawatt. Today we are generating 74 gigawatt with wind as of the last report from IWEA. I will make this Power Point available to anybody. I don't know how to put it on U-tube.

MS. YOUNG: That was Plan B.

[Laughter.]

MR. KOSHAK: Anybody can drop me an e-mail, and I will send it to you.

Wind construction mostly is in Texas. This is as of the 2015 reports. 16 gigawatt is being generated now in Texas at 5.7, and this is the third quarter. In 2016 California went to 6.2. That's where they are physically.

So why do we regulate them? The answer I gave earlier was there is going to be 100,000 of them, and that number is just pulled out of the air.

The Department of Energy came up with a plan called the 2030 plan, where they wanted 20

percent of all of electrical power in the United States generated by renewables by wind in particular.

When you look at the total demand, 20 percent is 320 gigawatt. If we use estimated by 2031 1.6 terrawatt, 1.6 or 1600 gigawatt, so we needed to generate 302 gigawatt, and today where it's 74. That is where all those numbers came from. If you are interested, I've got the Canadian stuff, too.

So now, with all of that information, I think asking questions can put it in the context.

MR. GRANT: I have experienced some of what the elevator mechanics go through to become licensed for the State as inspectors and what they need to know.

But are you comfortable in your estimation of a need for specialized endorsements relative to these sorts of conveyances in order to be qualified to inspect or service them?

MR. KOSHAK: It's funny you asked that. Maybe it's not funny.

I began a process of trying to create

an educational module to have that kind of certification. The union eventually came up with one.

The union wouldn't print one that was copyrighted to everybody. They wanted only for need, which I guess it's their business. That is what they are for.

So yes, there are. At this point the Union does have training dates. It has taken Illinois longer in the Union. So I didn't take it.

But I teach wind turbine for mechanics, and CET is not interested in doing it because they don't have the lobbying dollars to come here and try to get it on the CET agenda, which I think that is wrong. I think it's a big world. Not everybody has to be. Yes, both of them are available.

It does take special time to point out simple things. I think any elevator mechanic currently holding a card should be able to look at it.

MR. SMITH: The other part to get onto a farm you have to meet their qualifications as far

as climbing the rescue, first aid. It really does a good job to leasing the second part.

The technical stuff, they are not that complicated.

MR. GRANT: Number one, that would be an overarching additional physical capabilities and specialized training requirements.

Does that vary between farms?

MR. SMITH: Not that much, not too much, maybe a little bit. Sometimes they require maybe first aid or maybe Red Cross training as opposed to some other type of training. Sometimes it requires an OSHA 10 as opposed to not requiring an OSHA 10. It's pretty similar.

MR. GAHR: You touched on it. Andy, why don't you talk about some of the high angle residue.

MR. CHAMBERS: Chambers.

MR. HUNT: Give your name and come down in front.

CHAIRMAN BLOCK: Come down here so we can give you a dedicated spot.

MR. CHAMBERS: Chambers. We have other lawyers here as well. We have Pete Pedrola. As

an industry standard, we do require all of our farms to become certified through the lift process.

So Andy, who I have worked with in the past, we worked with their teams to actually provide these certifications to our staff.

We do not allow anybody on site to go into the turbine without having a certification, and with that it gives an overview; and Andy could give a better overview as to everything that entailed with that, but we do it every two years or three years.

MR. VANSLEET: We have a number of states. We have an extensive training program that you have to pass just to get into the turbine itself. So, I have mixed feelings on the concept of regulating them as an elevator. They are not an elevator.

The general public is not going to get within 100 meters of one of these lifts. We manage two OSHA requirements. We do that component. So to get on to one of my projects, you have to have an OSHA 10. You have to have electrical safety training. I can tell you that

because your inspectors are going to be working with electrical components, I am going to require that they be electrically qualified under 70-E.

In addition, my climbers are right here. It's two days of intensive training to get certified to climb one of these towers.

Not only do you have to train and climb, you have to train to rescue, and that is physically taking a 200 pound dummy or a 200 pound man and getting them to the ground.

In lot of cases we don't have fire and EMS support because they don't have the capability to get up to the top of our towers. So, we have to work on self-rescue.

So basically what you are looking at is two days of training or three days of training even if you are already certified to inspect an elevator before you get on my farms.

MR. SHANKLIN: What is the conveyance? I mean, you could argue elevator or a lift or whatever, but that is a conveyance.

MR. VANSLEET: It is a conveyance.

MR. SHANKLIN: An inspector wouldn't really be required to do anything. They would witness a

inspection, and they are not going to be working with anyone who has knowledge?

MR. VANSLEET: He is going to have to climb a 100 meter tower. I will be honest with you. I've climbed 100-meter towers. You've got a 30-minute rest.

MR. SHANKLIN: You have rest stations every 30 foot. Here it's every 90 foot. Here's it's 100 feet.

MR. VANSLEET: It's 90 to 100 feet.

CHAIRMAN BLOCK: To just keep in focus I think what we are being asked as a Board, the question we are being asked is what would we do with the ones prior to the adoption of the code?

MR. KOSHAK: Yes.

CHAIRMAN BLOCK: Just to keep that in focus mind.

MR. KOSHAK: Correct.

MR. GREGORY: The legal has to inform us on that, so we can probably turn this off now.

MR. CAPUANI: The gentleman that just spoke, I had a question for him.

I don't disagree with you that they are conveyance, but I believe they are special

purpose conveyances.

MR. VANSLEET: I believe they are licensed mechanics. They have a special purpose conveyance.

MR. CAPUANI: I am also a licensed mechanic. I believe I can figure it out.

Second of all, are you trained to sway us to say that you don't want licensed mechanics, that you want your own people to work on it?

MR. VANSLEET: Not sway, but my purpose here is to find out what we need to do to be legal in the State of Illinois. Whatever you guys decide, we will manage the process.

I was asked what do you need to do to be able to service these elevators, these lifts, whatever we decide to call them; and that is what you need to do.

If you are not working in a high rise downtown in Chicago. You are working in a very specialized area with additional hazards involved with doing the work. I mean, in a high rise in Chicago, if you need to go up to the elevator room on the top, you ride the elevator up.

MR. SHANKLIN: Correct me if I am wrong, what is the work on any conveyance in the State of Illinois you have to be licensed. You have to take that, and you are going to regulate it. They are going to say that you have to be a licensed mechanic to be able to work on it.

While now it may need manufacture's training for some things; but overall I would assume that we are going to regulate it.

So, if we are going to regulate it, my thought would be it has to be a licensed elevator personnel to be able to work on it.

MR. VANSLEET: We use OEM generally when we need repair.

MR. SHANKLIN: I am just going by the act.

As I said, I was asked what do you need to get into our towers?

Generally out on board guys it's two weeks of intensive training before we let them look at a tower.

If it's in access of what the code requires, have at it. You can have a month worth of training. You are a private owner.

But the minimum is what we are saying

the minimum is you are asking to be regulated under the code with mechanics, installers, inspectors all under our purview, which is fine.

You can select from the 15 that perhaps only one can climb or go through your training. That one gets very rich. Great for him. Great for you. It doesn't mean anything to us. You just have to follow the basics and make sure that the people who are going through that first level of training meet this level. I am not here to oppose either way. I am here for informational purposes only for ours.

MR. CAPUANI: I have one more question.

MR. SHANKLIN: Yes, sir.

MR. CAPUANI: So, I come to you. I am a licensed mechanic. You have all the certifications. Now, I have to take your course, too; right?

I have to take your course for two weeks before I could go to your windmills, the wind turbine?

MR. SHANKLIN: You are going to have to be climb certified.

MR. CAPUANI: Say I have all of those

qualifications. Now I come to you.

Do I have to take something from you? Do you have the training that you will provide.

MR. SHANKLIN: You will receive training at probably a lot less.

It is on just what the hazards are in our locations, our escape plans and all of that kind of stuff.

MR. CAPUANI: How long does that training taking?

MR. SHANKLIN: A couple hours.

CHAIRMAN BLOCK: We are getting off track. That is completely off track. That's a site requirement. There is a requirement for the inspection. The firms are going to have to deal with that. It's going be in their cost and everything else. Anything new we installed is regulated under the current code. We are here to talk about what is prior to the code.

MR. SHANKLIN: I was just curious on what the standards are.

MR. GREGORY: We are good.

CHAIRMAN BLOCK: Do we need a motion to put that one on the agenda?

MR. GREGORY: Your legal Department will decide that.

MR. HUNT: We are not sure how long it's going to take. We will make a decision and put it on the next agenda. We will make sure we put it on with more than enough advanced notice of whenever the next meeting is.

CHAIRMAN BLOCK: We are good. That's a public comment on that area.

Additional public comment, the only other thing I have is Patty Young.

MS. YOUNG: I have no comments right now, unless something else comes that you want me to address.

CHAIRMAN BLOCK: Okay. For the record, there are not more public comments.

Now we go to variances.

MR. CAPUANI: There are no variances.

CHAIRMAN BLOCK: And there are no variances. Okay. Then that is good. I think we are concluded.

Is there a motion to adjourn?

MR. JOHNSON: So moved.

CHAIRMAN BLOCK: Second?

MR. SHANKLIN: Second.

CHAIRMAN BLOCK: All in favor signify by saying aye.

[THE AYES WERE HEARD.]

CHAIRMAN BLOCK: The ayes have it. The meeting is adjourned.

(WHICH WERE ALL OF THE PROCEEDINGS HAD IN THE ABOVE-ENTITLED MATTER ON THIS DATE.)

STATE OF ILLINOIS)
)
COUNTY OF DU PAGE)

I, Patricia Ann Armstrong, a Certified Shorthand Reporter of the State of Illinois, do hereby certify that I reported in shorthand the proceedings had at the Elevator Safety Review Board Meeting, and that the foregoing is a true, complete and correct transcript of the proceedings of said meeting as appears from my stenographic notes so taken and transcribed under my personal direction.

IN WITNESS WHEREOF, I do hereunto set my hand at Chicago, Illinois this 11th day of March, 2016.

_____

Certified Shorthand Reporter

C.S.R. Certificate No. 84-1766